JULY 1980

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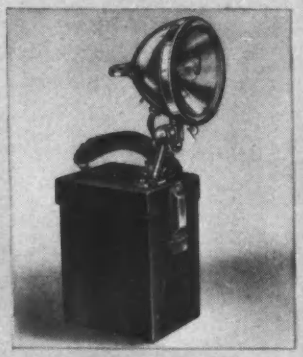
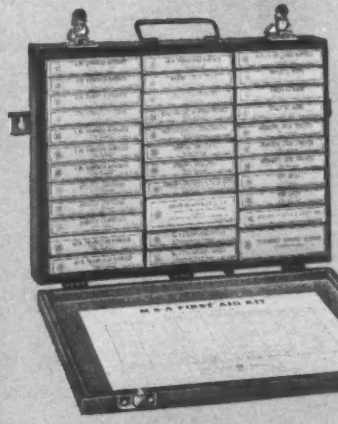
M·S·A Streamlined Fireman's Helmet

Smoothly curved for strength, utility and appearance, this popular Helmet withstands severe impact, heat, water and chemicals without injury. Light and comfortable to wear—one-piece molded of laminated bakelite—design deflects hot water, embers from neck and face. Shock-absorbing cradle in crown; rubber-cushioned sweatband. Detachable winter lining also available. *Bulletin DX-9.*



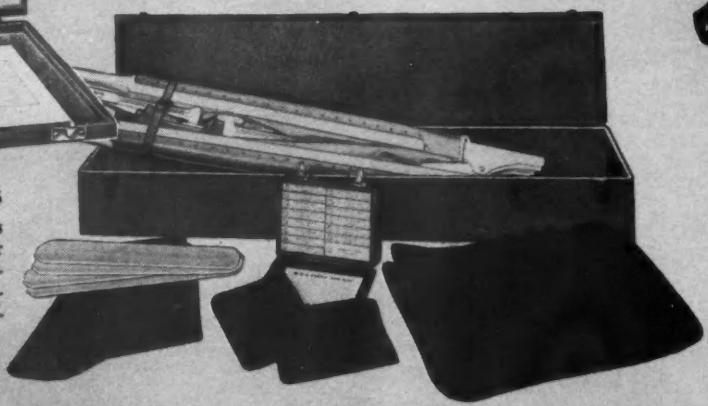
Edison Electric Floodlight

Brilliant, dependable illumination with easy portability. Uses sturdy Edison steel-alkaline cells for years of service. 25,000 candlepower with polished reflector. U.S. Bureau of Mines-approved for hazardous locations. *Bulletin M-10.*



M·S·A Stretcher Outfits

A complete line of stretchers including the illustrated M.S.A. Folding Stretcher Outfit. Compact steel case, ideal for vehicle mounting, contains folding stretcher, a wool and a rubber blanket, chemical hot pads, First Aid Kit, splints. *Bulletin FA-77.*



M·S·A First Aid Kits

Weatherproof, dustproof Kits meeting all requirements for fire department service, containing unit-packaged treatments and materials for emergency use. *Bulletin FA-91.*

H-H Inhalator

Known and used everywhere for effective resuscitation. Supplies correct oxygen-carbon dioxide mixture to lungs of victim in conjunction with artificial respiration—safe, simple, dependable. Bulletin CA-9.

for the modern Firefighter!

As the world's largest manufacturer of safety products, M.S.A. is headquarters for the finest in protective equipment required by today's fire departments. In quality, comfort, performance and durability, M.S.A. equipment leads the field . . . kept in front by premier research, exacting manufacture and long experience with the fireman's safety needs. For top service and value, specify *"M.S.A.—all the way!"*

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Uses the M.S.A. Demand Regulator for automatic supply of compressed oxygen (or air) from back-carried cylinder, according to breathing requirements. U.S. Bureau of Mines-approved for 30 minutes' service—light metal carrying frame—padded leather harness for comfortable wear. *Bulletin B-16.*

M·S·A

Type "S" All-Service Gas Mask

. . . and many other first quality safety products . . . Check your M·S·A representative on your Department needs.

SUSTAINING MEMBER: INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH 8, PA.

At Your Service:

54 BRANCH OFFICES IN THE UNITED STATES AND CANADA

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Fast-Flow Fluid

FOAM

For Fighting Flammable Liquid Fires

22 ADVANTAGES PROVIDED

- Faster Extinguishment of Gasoline Fires.
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- Flows Freely at Subzero Temperatures. (-20°F)
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- Double Strength — a Gallon Goes Twice as Far.
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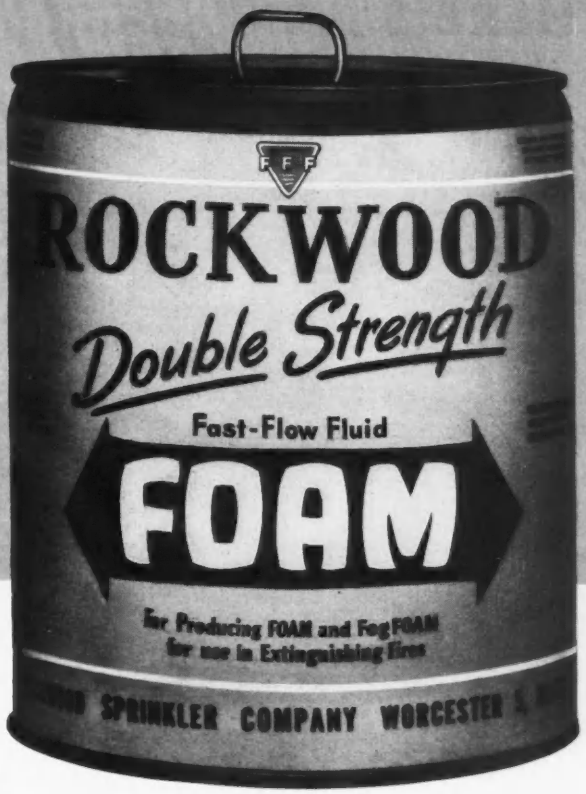
Rockwood Regular FOAM — the type previously supplied — is still available for use with Rockwood devices.

Here is an outstanding new FOAM Liquid to go with Rockwood's advanced type of FogFOAM and FOAM Nozzles for fighting fires in gasoline and other similar flammable liquids.

This new FOAM is now freely available for use with hose line nozzles and permanently piped FogFOAM and FOAM installations. It will give you many advantages over ordinary FOAM Liquid or powder foams.



- **MORE FLUID**
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- **FLOWS FREELY AT SUBZERO TEMPERATURES**

BY ROCKWOOD NEW FAST-FLOW FOAM

- ✓ **Flows Freely Around Obstructions.**
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- ✓ **Quicker to Put into Action.**
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- ✓ **Can be used with Standard Liquid Foam Systems for Storage Tanks.**
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Portable Fire Protection Division

ROCKWOOD SPRINKLER COMPANY

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THERE'S *Extra Value* FOR YOU *in* AMERICAN-LAFRANCE FIRE ENGINES

RUBBER MOUNTS SUSPEND THE CAB

To give YOU a better fire engine . . .

The all-steel cab is *suspended* on rubber at four points, thus relieving the cab — either open or closed type — of all distortion stress from rough or uneven road surfaces.

This *extra value* is not seen in a casual exterior inspection — but it is there to give you trouble free service. The heavy gauge all-steel cab with wide heavy doors is a product of American-LaFrance — built in our factory from our own dies and fixtures.

The four points of suspension by rubber provides shock and stress insulation not possible with compression mounting or bolting the cab directly to the frame.

Get all these *Extra Values!* Make sure your next fire engine is American-LaFrance.

Third in a series of advertisements on the *Extra Values* in American-LaFrance Fire Engines.

AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

Firemen

Volume 17 Number 7

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HENRY S. GERE — ADVERTISING MANAGER

Published monthly for the fire service members of the

NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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The Cover Photo

This *Milwaukee Journal* photo shows a 75-ft. double banked, American LaFrance tractor drawn aerial ladder coming out of a Pennsylvania Railroad boxcar for delivery to the Fire Department of Milwaukee, Wisconsin. This boxcar, 70 ft. long, said to be the largest made, was built for carrying fire apparatus. Purchase specifications of some fire departments limit the distance new apparatus may be driven under its own power en route prior to acceptance. This is to prevent long cross country runs which may involve unfavorable road conditions and possible damage to costly equipment. On the other hand, some new fire apparatus is driven hundreds of miles from the point of manufacture to the community where it is to serve. Sometimes, the apparatus is driven from the factory by factory delivery engineers. In other cases local fire department representatives drive the apparatus home.

An important consideration is the responsibility for damage that may occur to new equipment en route. Presumably the manufacturer is insured against such damage while municipalities or their representatives may not be covered. Also, there is the question as to responsibility for any possible failure to meet acceptance or underwriters' tests at the home community if fire department representatives have taken delivery at a distant factory.

Civil Defense Plans Start

Representatives of the NFPA, the Fire Marshals' Section, and other fire organizations met in Washington, May 19, by invitation, to discuss fire aspects of civil defense planning with Paul J. Larsen, U. S. Director of Civil Mobilization. Mr. Larsen told this group to go ahead with civil defense plans in the states and cities on the assumption that the weapons used against us would be at least of the order of the Hiroshima A-bomb on which considerable information has been published. Lt. Col. Barnet W. Beers, Assistant Civil Defense Liaison, U. S. Department of Defense, promised a circumstantial report dealing with the problems of fires as they appeared in the destruction of German and Japanese cities in World War II. This report will be transmitted to the National Security Resources Board and will be published by the Government Printing Office. Mr. K. P. Laughlin, consultant in the preparation of this report, outlined its contents to the meeting.

Mr. Larsen's purpose in calling the meeting was to informally obtain information which might be used in estimates to be submitted to Congress shortly after the first of the year. The meeting was presided over by J. T. Gobbel, Director of Wartime Civil Disaster Relief Planning of the General Services Administration. Under his direction and that of Paul A. Martin, Assistant Director, the General Services Administration is undertaking eight projects in fire protection and fire fighting aspects of the problem. In addition to the report described above to come from the Department of Defense, these include statements to be prepared on organization of the fire services, fire guards, auxiliary water supplies, communications, training, factors to be considered in civil defense legislation and forest and rural protection. In addition to the NFPA and the Fiire Marshals' Section, the General Services Administration s receiving cooperation in these matters from the National Board of Fire Underwriters, the International Association of Fire Chiefs, the International Association of Fire Fighters, and various government departments concerned.

Among those attending the conference were John A. Neale, chief engineer, National Board of Fire Underwriters; George H. Wahl, manager, Factory Mutual Engineering Division; J. E. Frederickson, director, plant protection, General Motors Corporation; fire chiefs Henry Thomas, Hartford; Hoyt Ayers, Birmingham; Rudolph Swanson, Jamestown, N. Y.; and John A. Alderson, Los Angeles; James E. Jagger, general manager, Fred Shepperd, technical advisor, and Carl Dreesen, consultant, International Association of Fire Chiefs; Horatio Bond, chief engineer, National Fire Protection Association; John P. Redmond, president and George J. Richardson, secretary-treasurer, International Association of Fire Fighters; E. A. Taylor, Deputy State Fire Marshal, and Jack Hayes, Deputy Civil Defense Coordinator, Oregon; Lt. Roderick Goeriz, Fire Marshal's Department, Detroit; Herbert Friede, Superintendent of Communications, Washington, D. C.; Sherwood L. Reeder, city manager, Richmond, Va.; W. A. Ross, consultant, U. S. Office of Education; Forrest J. Sanborn, Office Chief of Engineers, U. S. Army; Walton C. Clark, secretary, Federal Fire Council; Henry M. Shank and Howard J. Eberly, U. S. Forest Service.

How the Red Cross Meets the Challenge of Fire

by Max W. Rote, Jr., Assistant Director Disaster Prevention, American National Red Cross

From address before the Annual Meeting of the National Fire Protection Association Atlantic City, May 16, 1950

FIRE PREVENTION is a *must* with the American Red Cross. We are not only obligated by our Congressional charter to provide relief to victims of disaster but also to devise and carry on measures for preventing the same. In carrying out its obligation to render assistance to victims of disaster, the organization is faced with more fire disasters than any other single type of catastrophe. Since the Michigan Forest Fires of 1881 the Red Cross has participated in some 4,300 disaster operations, of which 1,550 were caused by fire. During the years 1881–1920 fires were the cause of 23 percent of our relief operations; from 1920–1949, 36 percent; and, during the past four years 55 percent. Undoubtedly, a great many of these fires could have been prevented.

In comparison with tornadoes, hurricanes and floods most fires affect relatively small numbers of families. However, one of the greatest catastrophes of recent years from a standpoint of property losses and the amount of relief expenditures was the series of New England Forest Fires of 1947, leaving in their wake a toll of 10 dead, 2,500 homeless, 712 homes destroyed in 9 communities, and more than a quarter of a million acres of ravaged forests, representing property losses of approximately 31 million dollars. In this single disaster operation Red Cross provided emergency assistance to 41,200 persons, including firefighters, and rehabilitation assistance to 1,189 families at a total cost of $2,356,000.

The types of assistance provided to fire disaster victims is quite similar to that provided in other disasters. Each of our 3,750 local chapters has a volunteer disaster preparedness and relief committee composed of various subcommittees, including warning, evacuation and rescue, survey, food, shelter, clothing, medical and nursing, registration and information, public information, and central purchase and suppy.

In advance of disaster, cooperative plans are worked out with governmental and private agencies. In certain sections of the country groups of chapters are banded together through mutual aid plans, whereby the resources of the neighboring chapters are made available as needed to a stricken community.

Each of our four area office headquarters, located at Alexandria, Virginia; Atlanta, Georgia; St. Louis, Missouri; and, San Francisco, California has a professional disaster staff composed of trained caseworkers, doctors, nurses, building advisers, accountants and administrative personnel who stand ready at all times to proceed to the scene of a disaster and assist local chapters. In addition each area has a reservoir of trained reserve workers who may be utilized on larger operations. A disaster staff is maintained at national headquarters in Washington, D. C., and assists the areas on larger operations.

To assure cooperation in time of disaster the American Red Cross has entered into agreements or understandings with many national governmental and private organizations such as the U. S. Army, The Coast Guard, the Weather Bureau, Amateur Radio Relay League, The American Legion, The Boy Scouts of America and others. Frequently we call upon the Army to loan us tents, cots, blankets, and even detachments of men to operate army field kitchens.

Red Cross assistance in disasters is given on a basis of need and in addition to food, clothing, shelter and medical care includes the provision of household furnishings, the repair or rebuilding of homes, and the provision of occupational supplies and equipment. On a casework basis it is determined what each family can do for themselves through their own resources, earning capacity, insurance, and borrowing power, and the Red Cross meets the remaining needs. Local advisory committees, representing a cross-section of the community, assist the Red Cross field unit in determining individual case awards, in interpreting Red Cross disaster policies to the public, and in solving operational problems.

In contrast to tornadoes, hurricanes and floods which are caused by the elements, many fires can be prevented. The fire prevention program of the American Red Cross has two phases, forest fire prevention and general fire prevention. Since 1944 we have participated in the cooperative forest fire prevention program conducted by the U. S. Forest Service. Red Cross publications feature forest fire prevention. Kits containing posters and instructional materials are distributed by our local chapters. A radio transcription subscribed to by 650 radio stations, is devoted to this activity. Junior Red Cross has also been very active. Despite an increase in the number of persons frequenting forests, parks, and recreational areas the number of forest fires is decreasing.

General fire prevention is stressed in our various publications throughout the year with special emphasis given in the Fall in connection with National Fire Prevention Week. Posters and other material developed by the National Fire Protection Association and the National Board of Fire Underwriters are made available to local chapters, and chapters are encouraged to participate in Fire Prevention Week in cooperation with other local groups. Safety services continually stress fire prevention in their first aid and accident prevention courses. Junior Red Cross leadership training centers and aquatic schools held in the summer months include the subjects of both general fire prevention and forest fire prevention on their programs, with lectures and talks by fire prevention authorities and the distribution of fire prevention materials. Fire prevention activities are coordinated at national headquarters and at our area offices through a special fire prevention committee represented by Disaster Service, Junior Red Cross, Public Information, Safety Services, and College Activities, and chapters have been asked to form similar committees.

We feel that fire prevention is so important it merits the attention and consideration of everyone.

General Manager Percy Bugbee delivering his annual report to the Association.

NFPA President John L. Wilds, Chicago, confers with Secretary-Treasurer Hovey T. Freeman, Providence, and Vice President A. H. S. Stead, Mcntreal, subsequently elected president for 1950-1951.

Vice President Allen L. Cobb, Eastman Kodak Co., Rochester, presiding at the session on Industrial Fire Problems.

54th NFPA Annual Meeting

Haddon Hall, Atlantic City, was the site of one of the most successful NFPA Annual Meetings, held May 15-18, 1950. Despite a threatened railroad strike, nearly 1,000 members and guests were registered. So many facts of fire protection were considered that as many as four simultaneous sessions were conducted. Detailed proceedings will be mailed to all NFPA members requesting copies. Your department should return the card sent with the June issue of FIRE NEWS. Shown here are a few of the speakers and members who attended.

(Photos by Central Studios, Atlantic City, N.J.)

Clint Davis, Director, Forest Fire Prevention, U. S. Forest Service, speaking on "Educating the Public to Prevent Forest Fires."

John A. Neale, Chief Engineer, National Board of Fire Underwriters, conducting Flammable Liquids Session.

Chairman W. A. Ross giving report of Committee on Firemen's Training. Seated: Warren Y. Kimball, NFPA "Firemen," and Past President Richard E. Vernor

J. E. Frederickson, Director Plant Protection, General Motors Corp. Seated: NFPA Chief Engineer Horatio Bond and Vice President Allen L. Cobb.

Chief Charles R. Scott, Ohio State Fire Prevention Bureau. Seated: Charles S. Morgan, NFPA and H. M. Armstrong, Fire Marshal, Province of New Brunswick.

Chief Edward N. Montgomery, Fire Prevention Division, Boston Fire Department.

Emmet "Ben Franklin" Cox, Western Actuarial Bureau, Chicago, demonstrating lighting behavior.

Chief Henry G. Thomas, Hartford, reporting as Chairman, Committee on Fire Department Equipment.

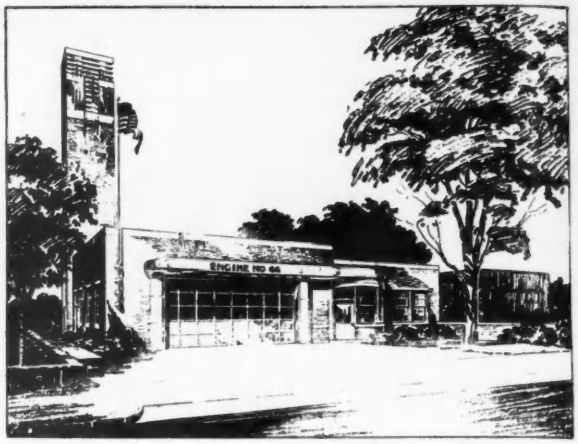
George J. Richardson, Sec.-Treasurer John J. O'Doherty, Trustee, and Chief John P. Redmond, Pres., International Association of Fire Fighters.

Members at registration desk. Seated at desk Dorris A. Sheldon, Charles S. Morgan, Beatrice L. Finley, NFPA Staff.

E. I. duPont de Nemours & Co. uses display window at Haddon Hall to welcome NFPA Annual Meeting.

NFPA Past-President Alvah Small, Chairman, Electrical Section, presiding. Seated, Charles L. Smith, NFPA Electrical Field Engineer.

Philadelphia's Bureau of Fire



Fire Station No. 66. One of several new stations under construction.

CHIEF ENGINEER JOHN C. COST and his Philadelphia fire fighters have reason to be proud of the progress that has been made in building up the fire fighting facilities in the City of Brotherly Love during the past 18 months. Last year 74 pieces of fire equipment costing $750,000 were placed in service. New apparatus has been ordered for 1950 to the tune of $600,000. In addition, the new Diesel propelled fireboat *Bernard Samuel* went into service during late 1948 (see FIREMEN, October 1949, page 17). Two slightly larger Diesel propelled boats costing $400,000 went into service in 1950.

Many fire stations in Philadelphia were originally constructed in the 19th Century. A replacement and rebuilding program is underway. Two new stations were completed in 1949 and new concrete floors were installed in three other houses. Eight new fire houses are being built this year and new floors are going into six others. A new repair shop has been provided for the apparatus Emergency Crew. This is only the start of a program to provide each company with modern quarters.

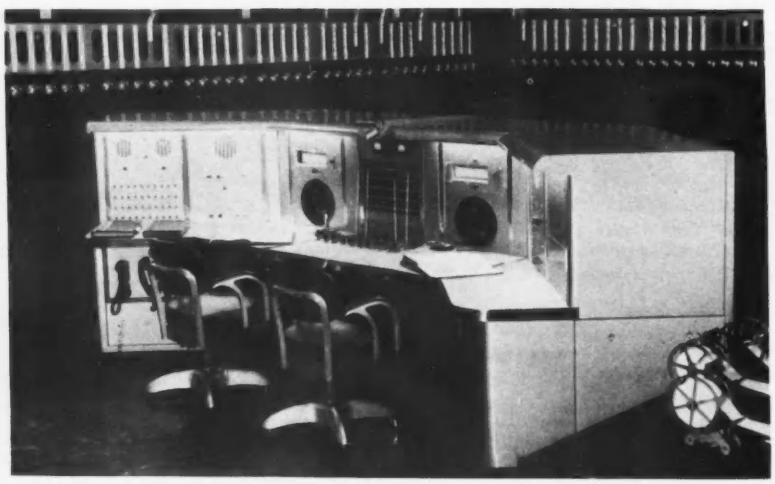
The present fire fighting force consists of 73 engine companies, 29 truck or ladder companies, 5 high pressure pipe line companies, 4 rescue squads, 3 fireboats, 3 water towers, 1 emergency crew, the Philadelphia International Airport Detail, and the Philadelphia General Hospital Detail. There are 3256 men in the fire fighting division including the chief engineer, 6 deputy chiefs, 37 battalion chiefs, 115 captains, and 230 lieutenants. Members are on duty 48 hours per week except for chief officers who work 56 hours a week.

Only 4 of the 73 first line pumpers are now more than 10 years of age and these will be replaced by new triple-combinations this year. Forty-two of the engine companies also have been provided with new hose-carrying booster trucks. Soon all engine companies will be so equipped. These trucks have proven ideal for the vast majority of fires.

CHIEF Cost and his men are firm exponents of the use of fog. The booster trucks supply fog jets on both 1-in. and 1½-in. lines. Initial operation is from the booster tank. A hydrant line is sufficient to keep the booster pump supplied even where hydrant pressures are as low as 25 lbs. These fog streams often make possible entry into areas in which crews with solid streams could not advance. Pumper lines (2½-in.) with fog or straight stream nozzles back up the smaller lines. New assignments are being made to all boxes to provide heavier response.

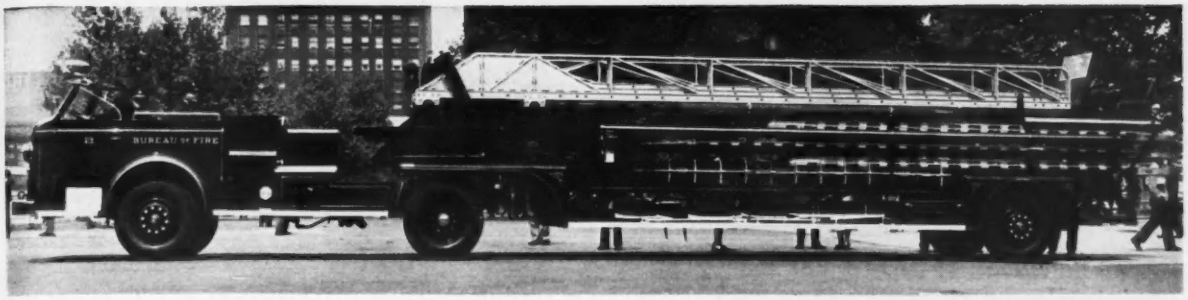
Getting new equipment to replace obsolete ladder trucks has been more difficult because of the greater delivery time required by manufacturers. Ten 85 ft. aerials were delivered last year and 12 more old trucks (including 11 that are more than twenty years old) are being replaced in 1950. Also being replaced are two old high-pressure trucks and a rescue truck.

The Philadelphia Fire Bureau realizes that new stations and apparatus are not enough. An intensive training program is under way. Some 2700 officers and men, including Chief Cost himself, have already completed the course at the Philadelphia Navy Yard Fire Fighters'



Fire alarms in Philadelphia are handled by the Electrical Bureau with central office in City Hall under Superintendent of Fire Alarm and Radio Systems F. O. Schierff and Chief Operator William B. Tibbs.

Several disabled fire fighters serve in Philadelphia alarm office. Shown here is a unique new control panel designed by Superintendent Schierff, consolidating a number of important operations. Left to right: Panel 1 includes police radio receivers from police and fire chiefs' cars and from the central office. The lower portion has controls for voice alarm circuits to the fire stations. Panel 2 has two sets of voice alarm amplifiers, one in service and one spare. Panel 3 has manually operated Gamewell "Peerless" transmitter and 6 circuit electric recorder, recording all outgoing calls. Panel 4 has jack and lamp panel for 120 box circuits, ammeter showing operating current and meter showing transmission on voice alarm system. Panel 5 has another transmitter, also recorder for incoming signals. Panel 6 has amplifiers for intercommunication system between West Philadelphia alarm sub-station, the Chief Engineer of the Fire Bureau, and the central office. Panel 7 is spare.



One of a fleet of new 85-ft. American-LaFrance aerial ladder trucks now in service. Several new 100 ft. aerials are on order for high value districts. Truck companies in outlying residential areas have new 65 ft. aerials.

School. Officer refresher courses are under way at the Philadelphia Fire Training School. In addition, officers have received instruction regarding special hazards from the E. I. duPont de Nemours & Company, the Philadelphia Electric Company and other agencies. One type of specialized training that has proven particularly valuable was a course at the Philadelphia Engineering Institute taken by all officers. The subject was the handling of refrigerator leaks and accidents. Each fire company now carries refrigerator tools thus relieving the rescue squads from answering most of these calls. Also much needless damage to refrigeration equipment has been prevented.

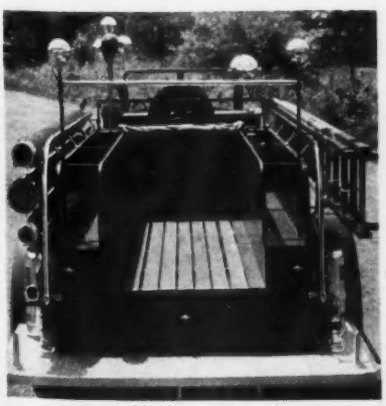
The Motor Training School has been brought up to date and is in continuous operation training members in the handling of new equipment. New rules and regulations have been issued to all mem-

(*Continued on page 21*)

Philadelphia's new rescue squad cars are among the most completely equipped in the nation. Each has a 10 kilowatt generator with two 1000 watt floodlights mounted on an elevator extending above the roof, in addition to portable lighting equipment.

Forty-two new booster trucks are now in service as hose carrying auxiliaries to pumper companies. These have a Hale booster pump that supplies a 1-in. reel and a 1½-in. line with fog nozzle from the 100 gallon tank until a hydrant supply line is connected to the booster pump.

Thirty-two triple combination pumpers on Autocar trucks were delivered in one order last year. Each has a 750 gpm, two-stage class A Hale centrifugal pump with four 2½-in. outlets, 100 gallon tank, 250 ft. 1-in. booster hose, body for 1200 ft. 2½-in. hose and 400 ft. 1½-in. hose. Shown is apparatus for Engine Co. 73 organized in 1949.



59 DIED IN TWO OF THESE OCCURRENCES

Chicago, Illinois. Trolley Car-Tank Truck Collision, May 25 (*Acme*). Thirty-two trolley passengers and a tank truck driver were killed when a trolley car went through a switch and struck a trailer truck carrying 8000 gallons of gasoline. Not more than fifteen persons escaped when the exits of the trolley, which opened inwards, were blocked by panic-stricken passengers. The fire department, responding to the first of four alarms, found flames already enveloping five buildings. Photo shows firemen on squad truck directing 2-in. turret stream over gutted street car toward buildings. Tank truck is at left of photo. Damage to buildings was conservatively estimated at $150,000.

Lynn, Mass. Multiple Tenant Building, May 21 (*Wide World*). This general alarm fire started in a slipper heel factory, fourth floor of an unsprinklered block, on Sunday afternoon. Although this blaze was so hot that an automatic water curtain operated to protect a department store across the street, flames were confined to one section of the fourth floor and a cockloft. Chief Joseph E. Scanlon cites the value of fire wall and fire doors which confined the fire. Thirteen engine, four aerial ladder, and squad companies used 18 hose streams including 4 wagon guns. Through effective salvage work loss was held to $75,000, a small fraction of newspaper estimates.

Indianapolis, Ind. Rubber Plant Fire, May 13 (*Acme*). Newspapers estimated loss at $500,000 when sacks of rubber and battery casing burned at the Richardson Rubber Factory Plant. Note fire involving gravity tank (right).

New York City, N. Y. Railroad Trestle Fire, May 7 (*Acme*). The Rockaway Beach branch of the Long Island City Railroad was put out of service by a trestle fire which created a 2500 foot gap. The bay area was too shallow for city fireboats and fire fighting efforts were confined to attacks by land companies operating from both ends. This is another example where small low-draft auxiliary fireboats might have been extremely advantageous. Loss estimated at $250,000. Note effect of fire on steel rails.

New York, N. Y. Printing and Paper Concerns, May 6 (*Acme*). Five alarms were sounded within an hour after pedestrians discovered fire on fourth floor of five-story printing plant and paper warehouse. Flames spread to adjoining five-story building and falling walls crushed two-story printing plant next door. Twenty-one engine and 4 truck companies fought the flames. Loss $250,000.

South Amboy, N. J. Munitions Explosion, May 20 (*Acme*). Detonation of 467 tons of munitions enroute to Pakistan damaged most of the buildings in South Amboy, New Jersey, with a loss of 26 lives. Damage to the Pennsylvania Railroad pier where munition barges exploded was $1,500,000. Property damage to the city of 10,000 population was $7,500,000. New York City fireboats assisted in fighting the fire and made several rescues.

Care of Aluminum Fire Department Ladders

For Your Own Safety, Aluminum Fire Department Ladders Should be Accorded the Same Degree of Careful Handling, Inspection, and Maintenance that has Developed Confidence in the Performance of Wooden Fire Department Ladders Over Many Years of Service

WITH the increasing difficulty in obtaining satisfactory grades of wood for fire department ladders, a prediction has been made that within five years all ground ladders being delivered with new apparatus for fire service will be of metal construction. At the present time approximately half of all new fire department ladders are believed to be of metal. Thus, there is considerable interest in the subject of the safety and testing of metal ladders.

Most, if not all aluminum ladders for the fire service, are made of the Aluminum Company of America's alloy 61S-T6, consisting of 97.9 per cent aluminum and a very small amount of copper, magnesium, silicon, and chromium. This alloy has a tensile strength of 45,000 psi and a yield strength of 40,000 psi.

The recommended heat treatment for this alloy is a two-stage operation. The solution heat treatment is carried out by heating the metal to 970° F. and then quenching in cold water. This part of the treatment must be controlled quite accurately, within plus or minus 10° F. The precipitation or second stage of the heat treatment is carried out any time after the solution heat treatment by heating the metal from 6 to 10 hours (depending on the size of the parts) at a temperature of 350° F. Close temperature control is not as critical in this part of the operation.

The desired properties for the ladders are obtained by the heat treating followed by periods of aging or hardening. Like other metals, gradually increasing brittleness or hardening is believed to occur as ladders increase in age, so that eventually the ladders may lose ductility and become dangerously brittle even though this change is not perceptible to casual examination. For this reason, metal fire ladders, like wooden fire ladders, should be subject periodically to inspection and testing so that any failure or likelihood of failure will be detected in test rather than at a fire. Certainly any metal ladders that have been in service for ten years should be made subject to careful examination and testing.

ANOTHER factor of possible interest to the fire service is that aluminum alloy construction is not recommended for use where the temperatures exceed 150° F. because these alloys lose strength rather quickly with increasing temperatures. According to data published by Aluminum Company of America, at 500° F. only 15 percent of the strength is available that existed at 75° F. A wood ladder would begin to burn at about 550° F.

Once the aluminum alloy ladders are subjected to heat of a fire of from 650° F. to 750° F. the metal is annealed and the value of the heat treating is removed. Thus an aluminum ladder subject to the heat of fire sufficient to cause annealing will have lost approximately one-half its strength upon cooling.

Aluminum melts at 1217° F. and in at least one instance the top of an aluminum aerial ladder was melted off by fire when power failure made it impossible to remove the ladder from danger. A wooden ladder would have been destroyed under the same circumstances. Steel, which retains somewhat greater strength at high temperatures, is used for aerial ladder construction but is too heavy for manually raised ladders.

Practical procedures for the safe use of aluminum ladders would indicate that if a ladder has been subjected to the heat of a fire it should be tested with weights before being returned to service. If you know that a ladder has been subjected to heat, or are not reasonably certain of exposure to heat, in many cases a slight discoloration of the metal will occur, as a discoloration or ring at the edges of the heated area. Such a condition is almost positive notice that the ladder has been heated beyond the annealing point. If the ladder has been annealed, the weight testing will show this fact quickly as the ladder will sag. This will indicate that it is unfit for further service.

At least one fire department did not know that heat that would produce discoloration of an aluminum fire ladder may also have been sufficient to anneal the ladder. They followed the dangerous practice of merely removing any discoloration caused by fire with a fine grade of sandpaper. Upon being informed of the danger that department now makes a practice of load testing any aluminum ladder discolored by fire before it is returned to service.

ALUMINUM ladders that have been handled roughly or blown down by wind should be examined much in the fashion of wooden ladders for:

a. loose rungs
b. loose rivets
c. serious dents in rails
d. permanent twisting of ladder
e. cracks, particularly adjacent to point of damage

In the absence of any official NFPA standards on the testing of fire department ladders, recommendations prepared by the American-LaFrance-Foamite Corporation for the testing of wooden ground ladders should provide a practical guide for inspection and weight testing of aluminum ladders.

Inspection of a ladder is mandatory before any physical test is started. The following items should be carefully checked:

1. See that every rung is right. No ladder should be tested until all rungs are tight. To do so invites failure.

2. Check all bolts to be sure they are tight.

3. Inspect each rail and rung for checks, cracks, and evidence of compression failure. (With wood, this latter condition may be in evidence by a wavy or wrinkled condition of the grain. It is not easily seen but should be suspected until a careful examination proves the material satisfactory.)

WHEN the ladder is satisfactory in all respects as outlined, proceed with the load test.

First, place the ladder against building at the proper angle; a practical formula is to have the butt end of the ladder a distance from the building equal to the length of the ladder divided by four.

Second, have a supply of sand bags each weighing 90 pounds. Two of these bags will equal the weight of the average fireman. Ladders from 16 feet length to 25 feet length should be tested for three men.

Ladders from 25 feet to 35 feet should be tested for four men.

Ladders from 35 feet to 45 feet should be tested for six men.

Ladders over 45 feet should be tested for seven men.

The load is to be uniformly spaced.

(*Continued on page 22*)

Member Departments

Abingdon Fire Department
Abingdon, Illinois

THE Abingdon Fire Department was organized in May, 1947, and is headed by Chief J. O. Simms. The organization protects the town of Abingdon, population 3500, and three other small towns and lake resorts.

Equipment consists of two 500 gpm pumpers, two tank trucks with 350 gpm high pressure pumps, and a Bean high-pressure truck. Funds for the department are raised from a tax of one mill on a $21 million district assessment. Plans also call for the purchase of a new portable pump and a light plant.

In the photo in the upper right corner of this page showing the Abingdon company in training it will be noticed that they are also equipped with the three-piece aluminum ladders, one having the double pole attachment.

Members are paid $3 for alarms in the town and $4 for those in the rural districts.

West University Volunteer Firemen, Houston, Texas

THE West University fire station has recently added a new ambulance to its equipment (see pictures below). The new vehicle has a two-way radio and the necessary first aid equipment including stretchers, smoke masks, four-hour oxygen supply, an Emerson resuscitator, bandages, splints, and other essential items.

Other units include an American LaFrance 750 gpm pumper, a Seagrave 600 gpm pumper, and a 200 gpm booster truck carrying 300 gallons of water and mounted on a Diamond T chassis. This truck will be replaced on July 1st with a 500 gpm pumper, built by Burk and Sims of San Antonio, Texas, and mounted on a 108 HP chassis. All trucks will be two-way radio-equipped.

The station has two base transmitters which control the radio fire alarm system, and all volunteer, as well as the four paid drivers, have receivers in their homes which are lock-tuned to the station frequency and operating continually.

Lynnfield Fire Department
Lynnfield, Massachusetts

THE Lynnfield Fire Department operates from two stations and consists of two companies of ten men, under a Captain and Lieutenant for each company, and Chief Josiah Poeton and Assistant Chief Harold F. Kaler who head the organization. The company was established in 1922 and now possesses as equipment three triple combination pumpers, two of 500 gpm and one of 600 gpm capacity, and a 100 gpm portable pump for forest fires and small equipment of hose and supplies.

The company is very active in social, relief, and educational programs.

Chief Poeton forwarded to the FIREMAN a twelve-page pamphlet of service regulations which is used by the department. The booklet is a thorough outline of the rules and requirements for each group and member within the department and details such things as compensation, individual duties, fire practices, and state and town regulations pertaining to the functions of the department.

Buckley Volunteer Fire Department
Buckley, Washington

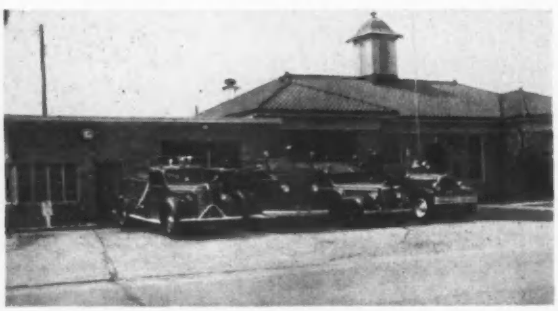
THE Buckley Fire Department was organized in 1889. Ray Wesner is Chief and Henry Hackman is Assistant Chief. Officers are elected by firemen for annual terms and approved by municipal officials. There are 23 volunteer firemen protecting the community of

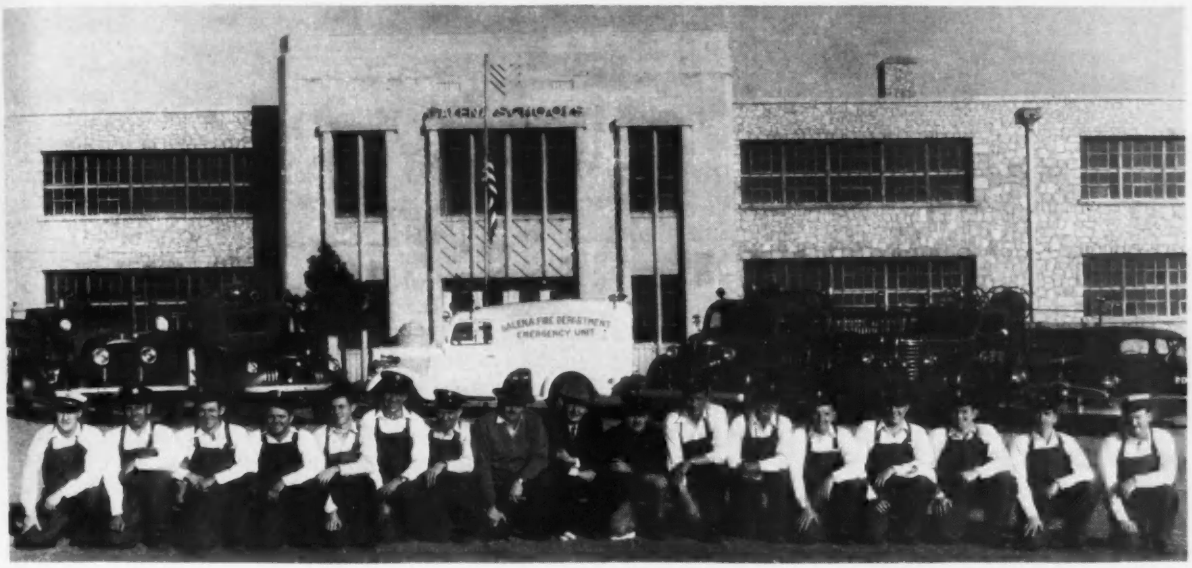
2400 population. They are paid $1.50 per call and drill. The department apparatus consists of a Howard Cooper 500 gpm. pumper with 250 gal. water tank and an OCD Trailer Pump. The department hopes to add a new rural fire truck. The Buckley Fire Department is quite proud of its modern Gamewell Fire Alarm system consisting of 25 alarm boxes distributed throughout the city reporting through a recording tape and operating an automatic siren.

Lakeville, Indiana, Fire Department

THE fire department in Lakeville, Indiana, was organized in 1935, serves Lakeville and the surrounding Union township, has membership of 35 men including 21 active fire fighters. The entire department has been trained by the Red Cross in first aid and is equipped with inhalators for first aid. Apparatus includes the 1935 Ford, 200 gpm Pumper, 1944 Howe Chevrolet, and a 500 gpm Pumper. A new 500 gpm pumper with high pressure fog is being purchased.

Walter Hamilton, appointed chief last October, is now developing a very full program to maintain interest to members.





Present Galena fire department with full equipment shown in front of Liberty Elementary grade school at Galena. Chief Chester Kibler at extreme left, Dr. Frank James, Mayor of Galena, in center of picture in dark suit.

Galena Fire Department

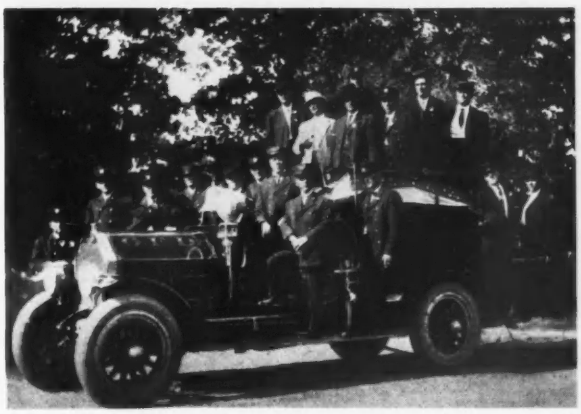
By Ronald Clifford, Galena High School

GROWTH of the Galena, Kansas, fire department (member NFPA) is fairly well represented by these photos. The group is completely volunteer. While the town has a population of only 4200, there are five fire-fighting units in the department. These have aided in emergencies as far away as Miami, Oklahoma.

The Webb fire truck, shown on this page, was the first piece of motorized equipment purchased for the department. Now the town's fire-fighting equipment has a combined pump capacity of 1500 gpm and 3600 feet of hose. Three of the trucks have dual-booster reels.

An emergency unit, called the "White Cloud" by the members, was assigned to the St. John's hospital in Joplin, Missouri, when power failed during the ice storm of 1949. This piece of equipment, used in accidents other than fires, contains a portable lighting system, resuscitator and inhalator, oxygen equipment, an aluminum boat with detachable motor, grappling hooks, ropes, life jackets, stretchers, diving gear, two asbestos suits, a public address system, and a first aid kit. Plans are now being made to install a two-way radio which will be connected with the Joplin and Galena police stations for faster service.

Fire Chief Chester Kibler now heads the group and under his direction the station and the equipment have been modernized. The volunteer members raise most of the funds for these purposes by means of an annual Firemen's ball and similar activities. The Lowell and Garden Townships also have aided in helping Galena to secure equipment.



Taken in 1912, this picture shows a Webb fire truck, purchased that year for the Galena station and still in use in 1924. Note smooth tires, soda-acid tank, large play-pipe and small nozzle, and gleaming searchlight.

A special achievement certificate was awarded to the Galena department in 1949 by the Kansas State Firemen's Association for outstanding service during that year.

1908 – The Galena fire department shown ready to race another man-drawn hose cart team. Note hose aiming target in left foreground.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Effective Use of Spray or "Fog"

FOG, properly applied, presents water in the form of broken droplets giving greater surface area for far quicker absorption of heat than is possible with solid streams or jets. While higher pressures tend to result in smaller particles with greater surface area, with faster heat absorption, actually, to secure adequate protection a fairly large particle size or "coarse" spray is required.

Connoisseurs of fog jets will enthusiastically debate the relative merits of various fog patterns, discussing range, coverage, solid or open cones of fog, and degree of personnel protection afforded. However, when all of the water in a gallon is converted into steam within a reasonable time through actual contact with flame or heat, the maximum cooling effect is achieved regardless of the exact form of fog used. Water on the floor in liquid form after a fire may not have done its full duty, as a large part of the heat absorption comes with conversion of water from liquid to steam.

With fog streams, as with solid streams, pressure is important as a vehicle for transporting the extinguishing agent from the nozzle to the fire area. Also the pressure may be used to rip off old shingles and to penetrate charred materials or deep-seated fires. Actually, however, high pressures, beyond those required to get the water particles to the fire, serve no good purpose, and may, in fact, add an appreciable hazard. The break-down of water into smaller droplets presenting greater surface area for heat absorption may also be accelerated by the use of a suitable wetting agent that will reduce the surface tension of the water, but as a practical measure a certain amount of surface tension is necessary and desirable to permit development of effective streams. Also, an excessive frothing action may have some undesirable effect upon the pattern of fog jets.

Different Techniques Needed with Fog

IT is not always appreciated that different techniques are desirable in applying a fog jet as compared with those used when handling a solid hose stream. With the solid stream, the attempt was to cool the burning material by the direct application of the stream to the burning material. Reduced below the ignition temperature, combustible solids such as wood, cease giving off flammable gases and the fire is put out. As any experienced fire fighter knows, it was sometimes impossible to approach within range to permit direct application of the stream on the combustibles, until the air in the room or hallway had been raked by a stream for cooling purposes. Often a solid stream was deflected or broken against the ceiling to function much as a sprinkler head or a fog jet where access to the flames was obstructed by stock or furnishings. This was fog application.

Fire fighters are familiar with the very hot water that often cascades down upon them when they are working their way up through a building while streams are being used on upper floors. This shows the amount of heat absorbed by the water. Much more heat would have been absorbed by the use of fog if applied so that all of the water could readily be converted into steam. Often with fog streams, the conversion of water into steam and the expansion that takes place may be so violent that fire fighters in the building must have protection until the steam is somewhat dissipated. In fact, persons experienced in the effective use of fog know better than to try to remain in an enclosed area where fog is operating on a hot fire. Fog is an ideal tool for indirect application of extinguishing agents. It is not unusual for the expanding steam to cool flames in open closets and adjoining rooms not in the direct path of the fog stream. Where possible, hosemen should stay below the level of the fire and continue application as needed to mop up the fire. Downward expansion of the steam appears to be more limited. Ventilation or natural draft should be utilized as needed to remove heat and smoke. Heat that is removed by ventilation does not require cooling by water.

Because of the steam expansion it is often desirable to use fog "applicators" for initial attack on fires in attics and similar concealed spaces which may be untenable for hosemen until after initial cooling. Often with a room on fire it may be possible, initially, to operate the nozzle through a window opening to give the operator protection during the first stages of attack.

In approaching a fire with a fog jet, the nozzle should be kept high enough to protect the head and face of the hoseman. Often the man back of the line gets the most punishment as heat is driven against the wall and ceiling, passes over the head of the pipe man, and reaches the man backing him up. When attacking inside flammable liquid fires, it is often desirable to have two small fog lines, using the second line to protect the first hose crew nearer the blaze.

In applying fog to an inside Class A fire it is good practice to direct the jet upward into the hottest part of the flame so as to get the quickest smothering and cooling effect of the water as well as protection for the nozzle man against the heat which must be approached at closer range than is sometimes necessary with solid streams.

Often with partition fires damage can be reduced by use of fog nozzles applied at the base of the fire. The natural upward draft will carry the steam from the fog up through the partition and concealed spaces, much more effectively than hose crews with solid streams can trace a partition fire and open up. Many fire departments can testify of fires well alight in concealed spaces that were snuffed out "like a light" by use of fog.

Good Results May Bring Overconfidence

ENTHUSIASM for the excellent results obtained and the effectiveness of even small caliber fog streams at effective pressures has led some fire fighters perhaps, to expect fog jets to accomplish the impossible. Persons familiar with what skillful fire fighters have been able to accomplish with even the old 15 gpm booster stream, are not unduly surprised with what can be accomplished with two 30 gpm fog jets at high pressure through ¾-inch high-pressure hose. It is known that a gallon of water fully utilized can absorb approximately the amount of heat given off by a pound of ordinary combustible completely consumed.

In theory, then, two such streams can absorb the heat from the burning of 60 pounds of fuel a minute. Of course, all the fire may not be put out in one minute. Also much heat generation can be prevented and fuels may be smothered until cooled. However, if a building and its contents are thoroughly heated and fire is deep seated, much more cooling effect may be required than can be

(*Continued on page 20*)

Handling Hose

A Pictorial Training Manual

8½ x 11 in. 80 pp. $1.00 single copy

FOR the first time there is available to the Fire Service of North America a manual of evolutions using fire hose backed by representatives of three leading fire service organizations. As a result of four years of work by the Joint Committee on Evolutions made up of representatives of the NFPA Committee on Firemen's Training, the International Association of Fire Chiefs, and the Fire Department Instructor's Conference, a manual entitled "Handling Hose, A Pictorial Training Manual" has been issued as a companion volume to "Handling Ladders," (published in 1949, 120 pp., $1.50 single copy). These manuals depict with photographs safe and efficient methods of performing basic fire fighting evolutions. There has been no attempt to set standards but rather to show several safe ways of handling hose and ladders.

Several meetings of the Joint Committee were held at Fire Department headquarters, Memphis, Tenn. The work of photographing hose ladder evolutions was carried out at the Fire Service Extension Building, University of Maryland, at College Park, with the cooperation of men and equipment from several Maryland fire departments.

Each movement in "Handling Hose" is illustrated by a $6\frac{1}{8}$" by $5\frac{7}{8}$" photograph. The development of each sequence is portrayed in the same manner as in the volume on ladders.

The excellent photography was by H. F. Rothery, Photographer, District of Columbia Fire Department. The NFPA underwrote the cost of photographic materials.

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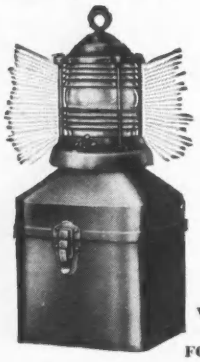

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Just a reminder . . .

THE Farm Fire Department Contest of the National Fire Waste Council begins on July 1st of this year and ends on June 30, 1951 (see "Firemen," March, 1950). The objective of the contest is two-fold. On the one hand, it is intended to give some National recognition to the thousands of fire departments that serve rural America. It is intended also to encourage the expansion and improvement of farm fire department service. Modern farming methods have brought new and serious fire hazards.

Contest Requirements . . .

1. Any fire department serving rural areas is eligible to participate, but only such fire department service as is rendered to farming areas may be considered for Contest purposes.

2. To assure fair and competitive standards, departments entering the Contest will be assigned to whichever of the following three classes is appropriate: (a) Rural fire districts (townships, county, or special tax districts operating fire companies). (b) Town or city fire departments operating rural trucks (may be supported by township or county funds or by donations). (c) Voluntary associations or "fire departments." (Voluntary fire service obtaining funds chiefly through donations, amusements, etc.)

How to apply . . .

Entry blanks and report forms may be obtained from local Chambers of Commerce which are members of the National Chamber. Any Department interested in the Contest may obtain information about it through the local Chamber of Commerce or by writing to the National Fire Waste Council, care Chamber of Commerce of the United States, 1615 H Street, Washington, D. C.

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INDUSTRIAL AIR PRODUCTS CO.

Portland, Oregon New Orleans, La.

Effective Use of Fog

(Continued from page 16)

promptly provided by first aid streams through small hose regardless of the pressure. For if a fire is generating 75,000 B.T.U. of heat and the streams are absorbing 50,000 B.T.U., the fire may be slowed or annoyed, but other things being equal, it will continue to burn and will generate more heat until the entire structure is burning intensely.

In many cases limited water supplies or small fog jets can be employed to cut off a fire from unburned areas and save considerable portions of a structure even if the entire fire may be generating more heat than can be extinguished immediately.

Because of these facts, many chiefs using tank apparatus to fight fires in rural dwellings and small buildings, prefer to make the initial attack on a free burning fire with streams large enough to quickly cool the blaze which can then be "mopped up" by the small streams. Some chiefs consider 50 gpm the minimum rate for effective application on fires that have gained any appreciable headway.

As previously pointed out in FIREMEN a gallon of water fully utilized makes 227 cu. ft. of steam. On the fire ground the effectiveness of attack can be estimated by the volume of condensing steam coming from the zone of combustion.

Water Must be Applied at Adequate Rate

IF water is applied very slowly the fire may generate more heat than small streams of any type can cool. Thus if 500 gallons of water are available on the first tank truck it may pay to use part of this quantity as quickly and effectively as possible to cool the fire down to a size that can be handled with small streams. The same 500 gallon tank of water applied at a slow rate may fail to cope with the blaze before the water supply is exhausted some 10 or more minutes later. Of course, in any case, the initial operation should be adequate for the size of the fire, but backed up with other available water supplies that can be mobilized from any available sources. The most effective equipment for this tank operation is considered by many chiefs to be two pre-connected 1½-in. lines with nozzles producing effective fog jets or cones. This equipment could be supplemented by two ¾-in. reels for use in conserving water and "mopping up" a fire that has been "knocked down" as well as for protecting exposures. After temperatures in the fire area have been reduced fire fighters can enter the area to begin mop-up operations. It can be said that departments that are using solid streams exclusively on rural fires are seriously wasting limited water supplies and are not getting the full results from the water employed.

Good Fog Requires Higher Pressures

MANY fire departments have not had entirely satisfactory results with 1½-in. fog nozzles because the same techniques and pressures were tried with fog nozzles that are used with solid streams. The 1½-in. fog streams, to be fully effective, should preferably have 100 lbs. or more pressure at the nozzle and in any event not much less than 80 lbs. Low pressures deprive fog streams of much of their effectiveness and reduce the rate of discharge. This failure to properly use 1½-in. fog streams applies to streams supplied both from tanks and from pumpers connected to hydrants or other water sources.

What many fire fighters have failed to grasp is that where all-purpose nozzles on 1½-in. lines are supplied through 2½-in. pumper lines at proper pressures, the 1½-in. all-purpose fog nozzle is supplying virtually the same amount of water as the old ¾-in. solid stream tip on the 2½-in. line at conventional pressures. For example, a ⅝-in. all-purpose fog nozzle at 100 lbs. delivers 114 gpm in solid stream position which compares with the 117 gpm delivered by a ¾-in. solid stream at the normal 50 lb. range. The 1½-in. hose can be handled by one man if necessary, and a single 2½-in. pumper line can supply two or more such streams, rather than a single jet.

Thus the output of water per hoseman may be increased by use of 1½-in. hose and the 114 gpm stream from the 1½-in. hose is much more effective at 100 lbs. than the 117 gpm stream at 50 lbs. from the ¾-in. tip on the 2½-in. line. In addition, the 1½-in. all-purpose stream provides a safe, easy-to-handle fog and much greater mobility. Even if a fog nozzle is provided with a 2½-in. hand line the shift from fog to straight stream is more difficult to handle.

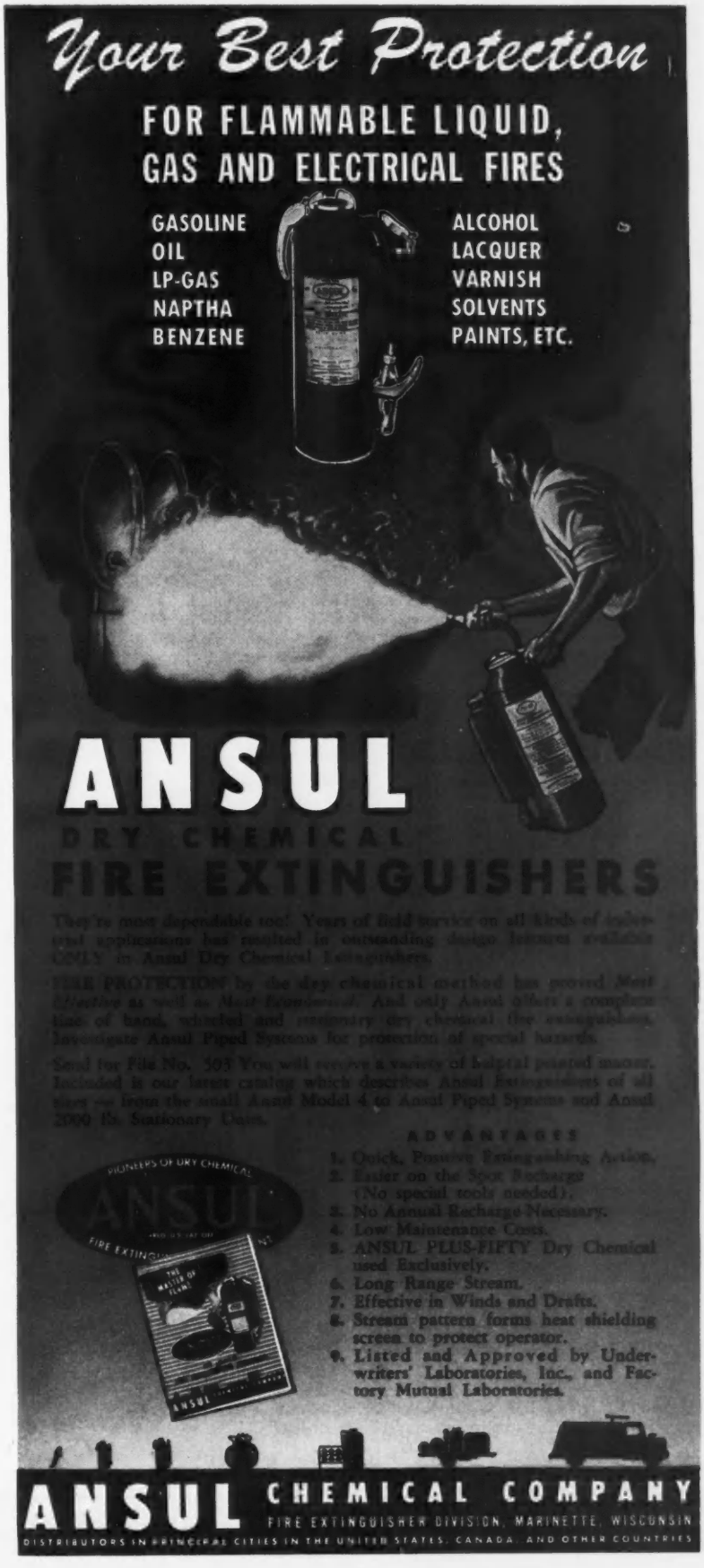
Also the fog streams are useful on most all classes of fires commonly encountered in buildings. Fog may be employed on high-flashpoint flammable liquid fires, on electrical fires which cannot be controlled by first aid extinguishers, and on fires in ordinary combustibles. Fog does not conduct electricity because of the broken nature of the jet which does

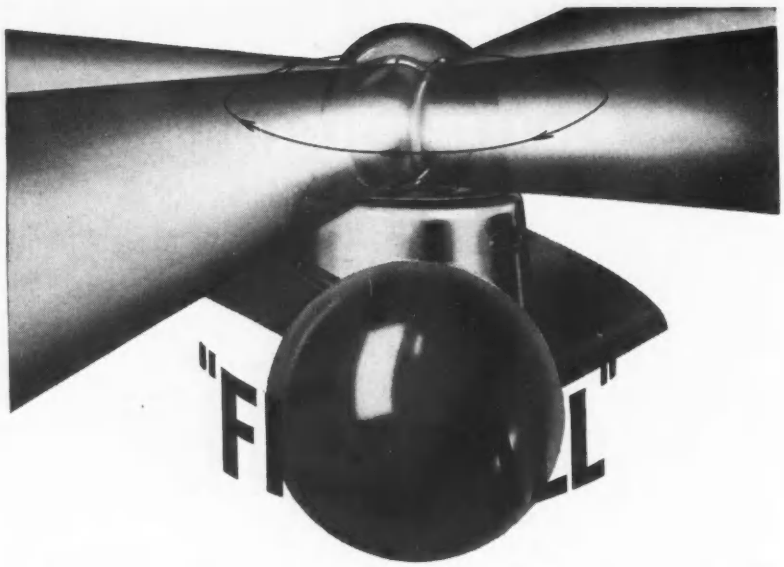
not provide an electrical path between the energized equipment and the nozzle. However, with any electrical fire, firemen must be careful not to approach close enough to have direct contact through an arc.

A number of fire chiefs have testified that failures to obtain effective results with fog have been due to this failure to provide adequate pressure. Often the difficulty can be traced back to the pump operator who has been instructed to provide a conventional pressure which will take care of small solid streams where the friction loss is low. With all-purpose fog nozzles served by 1½-in. leader lines connection to 2½-in. supply lines, the pressure required is 100 lbs. at the nozzle plus at least 60 lbs. for the 150 ft. 1½-in. leader line plus the friction loss in 2½-in. hose. Therefore, the pump should be operated from at least 180 to 200 lbs. pressure. This should give the operator no difficulty if he knows the layout being employed because most pumps are set to operate the first line as well as the booster line in pressure rather than volume position. This position may be employed for a layout which supplies several 1½-in. leader lines from a single 2½-in. line. However, if it is desired to run additional lines from the pump, it may be necessary to go into volume position and accept some reduction of nozzle pressure. This should not be unsatisfactory providing that the layout is such that the pressure at the nozzle does not fall much below 80 lbs. Of course the reduced flow in each line will also reduce the friction loss so that the pump should not have difficulty in supplying the lower nozzle pressure.

Actually any fire department that wishes to consider itself modern should insist upon using all-purpose fog nozzles of suitable design upon their first lines run at any fire. The use of solid streams should be reserved for fires where fire fighters cannot approach at close range and heavier streams are needed. Of course, an all-purpose fog nozzle provides a handy solid stream position so that where additional reach or penetration is needed this can be employed. A number of fire chiefs that have had a great deal of experience with fog do not leave to chance the important adjustment of the nozzle to provide the most effective fog pattern. Hosemen working in smoke may be unable to get the best nozzle adjustment at a critical time or may use a less effective nozzle position because of personal comfort or con-

(*Continued on page 23*)





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And it's *economical*. A 4-oz. jar makes about as many cups as 1 pound of ordinary coffee, yet costs far less!

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*Nescafé (pronounced NES-CAFAY) is the exclusive registered trade mark of The Nestlé Company, Inc. to designate its soluble coffee product which is composed of equal parts of pure soluble coffee and added pure carbohydrates (dextrins, maltose and dextrose) added solely to protect the flavor.

Care of Aluminum Ladders

(*Continued from page 13*)

The first load is to be applied not less than four rungs from the bottom, the second load at least four rungs from the top, and the other loads are to be uniformly spaced allowing not less than four rungs between each load. The load may be applied by means of ropes and pulleys so that men will not be endangered by climbing the ladder to attach loads.

After the loads have been applied, and if the ladder shows no sign of twisting or weakness in any rail, the loads are to be removed.

If the ladder does not have 100 percent recovery immediately, so that it is straight and true, the ladder is to be condemned as unfit for further service.

American-LaFrance has also suggested tests for wooden aerial ladders. These tests when used have resulted in replacement of a number of wooden ladders which were found unsuitable.

Recent publicity has been given to advice against testing of wooden ladders because strains resulting from severe testing might damage the wood fibres and result in future failure. This does not apply, however, to the above tests whether on wood or metal ladders as these do not employ loads sufficient to cause destruction or damage to sound wood or metal, but are enough to show up defects that have already made a ladder unsafe for use by firemen. In other words, the recommended tests are on the minimum side as far as loads are concerned, but a ladder (metal or wood) that has perfectly passed inspection showing no loose rungs or other defects and which passes these weight tests is considered to be reasonably safe for further service.

Ladders Deserve Good Treatment

IT is almost certain that your department will be using metal fire ladders within a few years even if not fully equipped with them at the present time. Accordingly, fire departments should be prepared to give metal ladders the same kind of careful handling and maintenance that has built up confidence in the performance of wooden fire ladders over many years, with the relatively few failures due to overloading, faulty use or poor maintenance. Manufacturer's instructions should be followed in the use of aluminum or other fire department ladders. Some aluminum extension ladders are designed so that they can be raised with the fly ladder either toward or away from the building. Other

aluminum extension ladders are trussed for use with the fly away from the building only.

The Superintendent of Machinery of a large fire department using a number of metal ladders has this comment:

"It is suggested that any ladder which has been subjected to an abnormal load, excessive heat, or any distortion, be closely examined and tested with a normal load before being used again.

"It should be noted that an abnormal load should not be construed as meaning only having more than the normal quota of men climbing the ladder. One man directing a 1-in. hose stream to a point either level with, or above his position, with the direction of the stream being nearly parallel to the rungs of the ladder, will exert a severe horizontal as well as vertical pressure on the ladder. It is, therefore, important to examine the ladder closely for indications of bent as well as sagging rails or beams.

"Any metal ladder which has been exposed to even moderately excessive heat, even as low as 150° where there is a possibility of it being rapidly chilled by direct contact with cold water, either by hose stream or spray from stream, should be thoroughly examined, and, if possible, tested before being subjected to approved normal load.

"Inasmuch as ladders cannot always be placed to buildings in the approved position, it should be mandatory that any metal ladder which is used while in an abnormal position be closely examined for twist or distortion of beams, rungs, etc., before future use.

"It is not always possible to have detailed inspection and tests of ladders after every use when conditions mentioned above have been encountered. However, if it is known or suspected that there may be a potential structural weakness existing, such information should be made known to all concerned, and specific instructions issued to reduce the load until the condition of the ladder can be determined."

Metal ladders bring numerous advantages including lighter weight, conservation of manpower, compactness (a pumper can carry a 3-section 45 foot pole ladder), and economy. They deserve the same degree of care and maintenance that should be given to any fire fighting tool on which the lives of fire fighters and the public may depend.

●

Effective Use of Fog

(*Continued from page 21*)

venience. The nozzle should be preadjusted to get the full effect of the fog, usually to about a 30° cone. A separate shut-off valve installed behind the nozzle will permit instant application of the proper fog without fumbling through a number of adjustments. They use other supplemental streams when solid streams are necessary.

HALE TYPE FZZ Portable Pumping Unit

● Handy for Re-Laying to Major Pumper

● Compact yet powerful!
● Designed for Fire Fighting

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Directly above — For 12 hours these two FZZ units supplied water through 650 ft. of 1½" hose to a large pumper fighting a barn fire. At top — Single FZZ relaying to major pumper.

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OVER 80% of N. Y. City's Firemen are Delehanty-Trained

L.A.F.D. Photo

Squad Company 23 L.A.F.D.

THE Los Angeles City Fire Department recently placed a new squad company in service. This unit rolls in a new Mack radio equipped squad type truck, quartered in the No. 23 Fire Station and designated Squad 23.

The purpose of this unit is to quickly concentrate additional manpower at all alarms from high-value areas, schools and institutions. It will respond on special calls as needed.

Its first alarm assignment includes most of the territory covered by the heavy duty manifold companies (see Firemen for June 1950). This provides an additional officer and eight men to assist in manning the equipment of companies responding in congested districts.

Volunteer Company Protects Antelope Valley

CHIEF Spence D. Turner, Chief Engineer, Los Angeles County Fire Protection Districts (Member NFPA), recently forwarded information on this volunteer fire group that assists the paid county fire force. This company works out of Lancaster which is twenty-five miles north of Los Angeles and services an Antelope Valley desert area of 425 square miles in that region. Large stacks of alfalfa hay worth $15,000 or more are often endangered by field fires.

Equipment is a 1941 General Motors truck carrying a 400-gallon water tank and a 500 gpm OCD pump.

Los Angeles Times Photo

Philadelphia's Bureau of Fire

(Continued from page 11)

bers and a guide for the preparation of bureau reports has been distributed.

FIRE prevention has not been neglected in the rejuvenation of the Philadelphia Fire Bureau. The Fire Prevention Bureau, formerly autonomous, has been made a division of the Fire Bureau under Chief Cost, with Deputy Chief George H. Kingston as fire marshal. Chief Kingston and his assistants are fighting fire hazards with the same zeal that the fire companies use in fighting fires. City building and fire prevention regulations are being strengthened with the point of view of the Fire Bureau in mind and with the intention of providing greater life safety.

Last year the Fire Bureau answered 16,043 alarms of which 11,530 were actual fires and 2,168 were emergency calls. In 1949, the department placed 1,886,571 ft. or 357 miles of hose in service at fires as follows: 1-in. — 738,956 ft., 1½-in. — 151,295 ft., 2½-in. — 987,000 ft., and 3½-in. — 9,320 ft. Interesting to fire fighters familiar with the usual screw type coupling is the fact that all 2½-in. fire hose in Philadelphia is equipped with snap couplings which may be instantly connected and disconnected. The Bureau claims a long and satisfactory experience with this type of coupling.

●

Fire Schools

Maryland. Firemen's Short Course, College Park, University of Maryland. Sept. 5–8.

Pennsylvania. Twelfth Annual Fire School will be held at Lewiston. Aug. 14–18.

Tennessee. State Fire Service School will be held at Middle Tennessee State College, Murfreesboro, Aug. 21–25.

Virginia. State Fire School to be held in Norfolk. Sept. 11–15.

●

Short Course for Fire Prevention Inspectors at Iowa State College in August

THE Engineering Extension Service of Iowa State College, Ames, Iowa, will conduct the Fourth Annual Short Course for Fire Prevention Inspectors on August 22–25, 1950.

Mr. Robert C. Byrus, Fire Protection Engineer of Iowa State College, extends an invitation to firemen of all other states to attend the course. There is no enrollment or registration fee.

BARTON-AMERICAN
DUPLEX-MULTISTAGE
CENTRIFUGAL
FIRE PUMP

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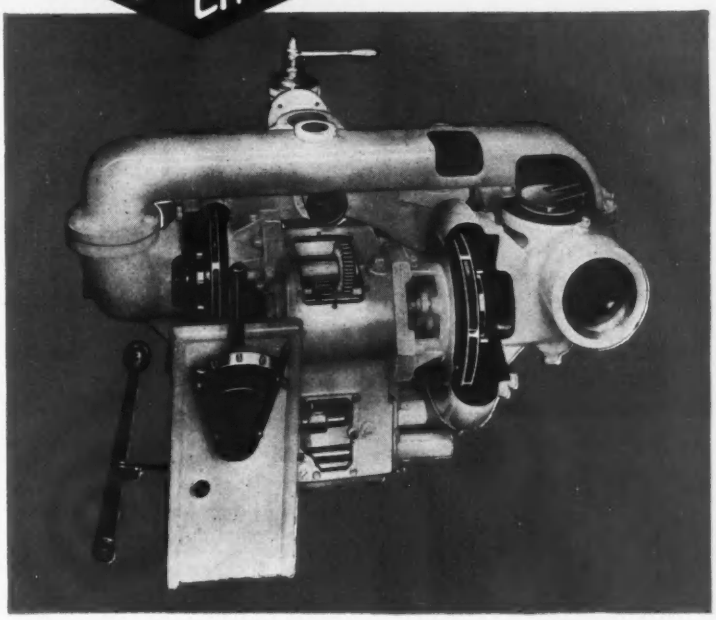

The Barton-American Duplex-Multistage Fire Pump is the only two stage fire pump with three operating characteristics. Two independent pumps driven by individual gear trains — breakdown of one still leaves one in operation. No other pump is as adapted to present day fire fighting requirements. Possible to operate high pressure fog while regular pressure lines are operating at the same time. No other pump so simple — no other pump so dependable. Available for pressures as high as 850 lbs.

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Membership Report

Membership in the NFPA Fire Company Section costs $12.50 per year. This includes 10 subscriptions to FIREMEN. Additional fire fighters may be enrolled to receive FIREMEN at $1.25 each. Other NFPA members will be sent FIREMEN on request.

NFPA Welcomes:

NINE new members and 228 Firemen subscribers who raise the total fire company section membership to 1,386 fire companies and 20,507 individual firemen. This is in addition to paid fire officials holding individual NFPA memberships.

States and companies represented this month are as follows:

California: *Camarillo State Hospital, Camarillo. Davis Fire Department, Davis.*

Connecticut: *Bethany Volunteer Firemen's Association, Bethany.*

Illinois: *Chrisman Fire Protection District, Chrisman.*

Iowa: *Mediapolis Volunteer Fire Department, Mediapolis.*

Massachusetts: *Wareham Fire Department, Wareham.*

Michigan: *Burtchville Fire Department, Port Huron.*

New Jersey: *West Atlantic City Volunteer Fire Company, West Atlantic City.*

New York: *Fort Plain Fire Department, Fort Plain.*

Jordan Volunteer Fire Department, Jordan.

Mazeppa Engine Company, No. 2, Nyack.

John Miller Hook & Ladder Company, Scotia.

Sidney Center Fire Department, Sidney Center.

Tallman Fire Department, Inc., Tallman.

Ohio: *Ostrander Volunteer Fire Department, Ostrander.*

Oregon: *Tualatin Volunteer Fire Department, Tualatin.*

Texas: *Rosenberg Volunteer Fire Department, Rosenberg.*

Every member receives a handsome membership certificate illustrating the history of fire protection.

How to join NFPA

Obtain application blank from NFPA Executive Office, 60 Batterymarch Street, Boston 10, Massachusetts, U.S.A., or from any member of NFPA Membership Committee.

Fire Company Section

Any organization or individual is eligible for associate membership in the NFPA if interested in the protection of life and property against loss by fire. However, membership in the Fire Company Section of NFPA which provides special services is open only to

(1) A fire department or fire company in a community of less than 25,000 population.

(2) A bona fide volunteer fire fighting organization in any community.

(3) A private industrial fire brigade

(Annual dues $12.50)

Membership in the Fire Company Section of NFPA provides:

(1) Member companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen. Beyond the ten, additional copies of FIREMEN cost $1.25 per year.

(2) A single subscription to all regular material sent to NFPA members such as the "Quarterly" journal, monthly Fire News, technical standards, popular bulletins, and special pre-publication discounts on books published by NFPA.

(3) A handsome certificate of NFPA membership suitable for framing.

Individual Associate Membership

Fire departments (not eligible for Fire Company Section Membership), officers, firemen, and others interested in fire safety. NFPA associate members in the fire service receive: one copy of all publications sent to Fire Company Section members. Member chiefs may purchase extra copies of FIREMEN for their fire stations at $1.25 per year. Write for full details.

(Annual dues $12.50)

N. F. P. A. Announces . . .

"The Individual Fireman's Responsibility in Public Relations."

The Individual Fireman's Responsibility in Public Relations

Prepared by NFPA Committee on Firemen's Training.

•

Twenty pages and cover 6 x 9 inches.

•

$.35 per single copy NFPA No. 613-M

This pamphlet, with attractive red cover, is the latest of a series of informative booklets prepared by the NFPA Committee on Firemen's Training for use by the fire fighting service. The publication shows how the individual fireman can influence the public toward his own department and job. It was published with the cooperation of the officers of the Committee on Public Relations.

It touches a different phase of the subject covered in the NFPA Public Relations Manual for Fire Departments (No. 612-M) prepared by the Committee on Public Relations and designed to aid fire departments in conducting public relations programs.

The new publication is illustrated and in easy-to-read style and should be placed in the hands of every fire fighter, or at least in each fire department station. It is priced at 35c per single copy with appropriate reduction for quantity orders.

Also

Now Available

A new reprint of a three-part series entitled "Making a Good Job of It," by Warren Y. Kimball, Editor of "Firemen", is now available. This issue combines the related articles that appeared in the April, May, and June issues of the magazine and may be obtained at the usual price of 25c per copy, with reduced prices for quantity purchase.

This series deals with the two quick formulas for determining friction loss and pump pressures as applied to various hose lengths and nozzle sizes and a method for finding the gpm for various nozzle pressures and tip sizes.

National Fire Protection Association, International, 60 Batterymarch Street, Boston 10, Massachusetts.

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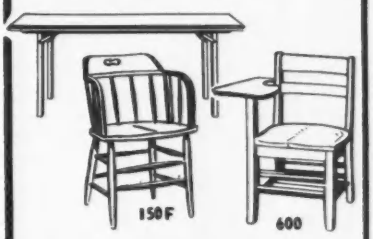

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What's New In Fire Equipment

Mobile Kohler Electric Plant

Hospitals, police and fire departments, community service and welfare agencies can call on National Light and Pump Company for emergency electric power in Denver and surrounding territory. A 3A21 Kohler electric plant, mounted on a truck, produces 3500 watts of flood light illumination. Truck also operates a pumping system and carries welding and power tool equipment.

Drains Fire Hydrant in 60 Seconds

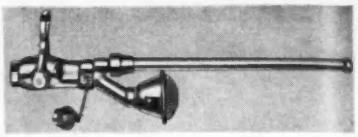
The Adams Jet Drain with small portable air compressor will pump any standard fire plug dry in 60 seconds, according to the manufacturer, The Jet Drain Engineering Company, 215 N. Fayette Street, Saginaw, Michigan. A drain-off hose extends down into the barrel of the hydrant, a simple twist of the wrist tightens a pressurized waterlock. The air jet valve is then plugged in, attached to air compressor and the hydrant is completely drained in one minute. Adams Jet Drain is solidly constructed of non-corrosive bronze, weighs less than five pounds. Write to manufacturer for free demonstration or information.

New Ansul Jeep Fire Truck in Action

Ansul Chemical Company is now marketing a low cost jeep fire truck (four wheel drive), Model 340J1, carrying 340 lbs. of dry chemical. This pocket-size fire truck is designed to aid municipal fire chiefs, building contractors, manufacturing and chemical plants, the petroleum industry, airports, electric and gas utilities and other installations where fire hazards are dispersed over wide areas. Two Ansul 20 Extinguishers mounted on hood are available for small fires.

Photo shows two Ansul fire technicians extinguishing a 100 sq. ft. gasoline spill fire with two 50 ft. hose lines on Model 340-J2. The dry chemical tank may be pressurized on way to the fire.

Write to Ansul Chemical Company, Fire Extinguisher Division, Marinette, Wisconsin, for literature and prices.



Rockwood SG-48 Water Fog Nozzle Now All Purpose!

Rockwood Sprinkler Company recently announced an entirely new fire fighting device when inserted in their SG-48 water fog nozzle will make five different kinds of discharge from this one nozzle. The new FF FOAM extension unit combines with type SG-48 to handle any type of fire in ordinary combustibles, flammable liquids or materials that can be extinguished with water alone or water mixed with FOAM liquid.

Rockwood FOAM liquid can be automatically mixed with water and supplied to the new FF extension by means of the Rockwood hose line FOAM educator or their latest type of FOAM proportioning systems built into fire trucks.

Write to Rockwood Sprinkler Company, 38 Harlow Street, Worcester 5, Mass., for literature and prices.

FOR SALE

American LaFrance 75-foot aerial ladder truck, fair condition.
For details write: W. F. Schuehler, Fire Dept., Cortland, New York

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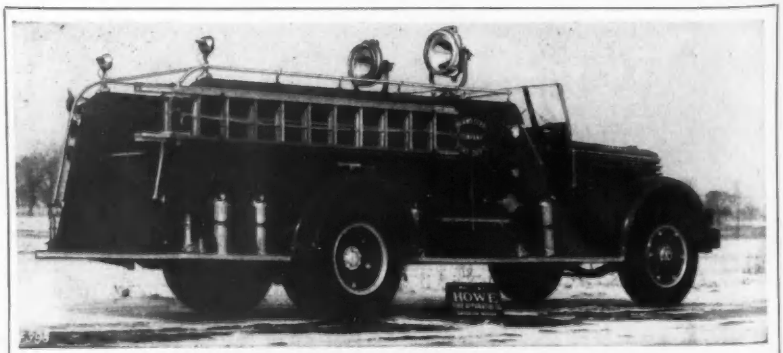

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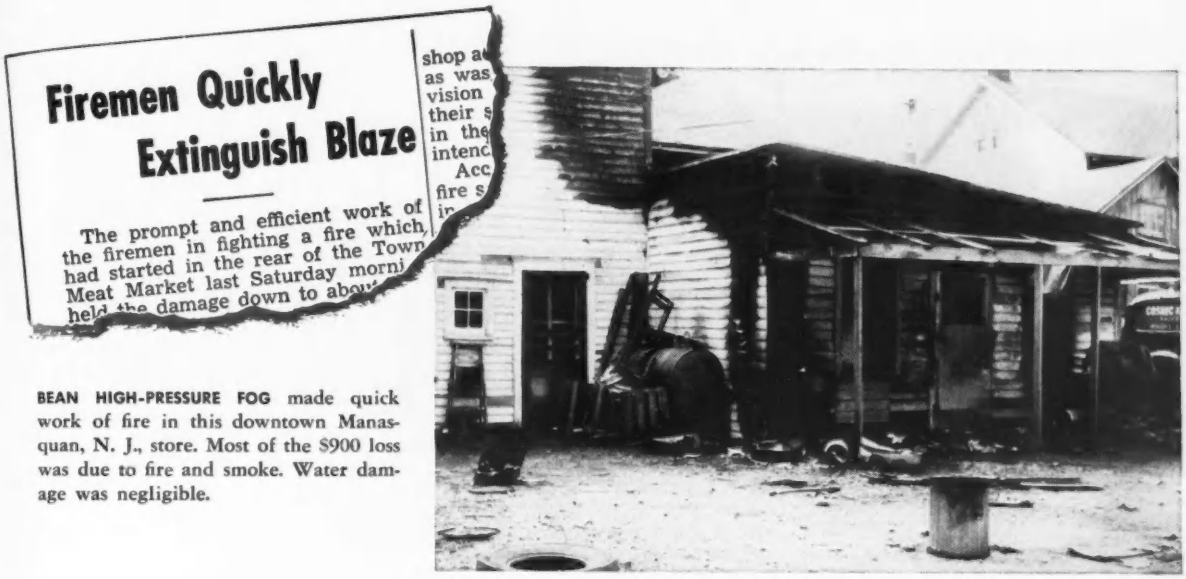
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BEAN HIGH-PRESSURE FOG made quick work of fire in this downtown Manasquan, N. J., store. Most of the $900 loss was due to fire and smoke. Water damage was negligible.

BEAN High-Pressure Fog limits loss to $900!

THE FINEST in fire protection! 435-gal. tank—60 G.P.M. at 850-lb. pressure—2 hose lines, each 250 ft.—choice of 2- to 4-ton chassis.

FIRE HAD a head start on a downtown Manasquan, N. J., store.

Things looked bad by the time the local fire department arrived with four pumpers, one ladder truck and its new John Bean High-Pressure Fog Fire Fighter. Pumps were placed . . . hose lines laid. But they were not needed.

The new Bean High-Pressure Fog Fire Fighter, carrying its own water supply, beat the other trucks to the draw. *High-Pressure Fog extinguished the fire before they could draw a drop of water.*

Thanks to this remarkable fire fighter, a would-be disaster was held to a $900 loss. Amazing, yes! But Bean Fire Fighters are duplicating this performance every day throughout the country.

Assure your town of maximum protection with minimum fire loss. Write today for a fully illustrated booklet on modern, John Bean fire protection.

BEAN *Original* **HIGH-PRESSURE FOG FIRE FIGHTER**

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY AND CHEMICAL CORPORATION

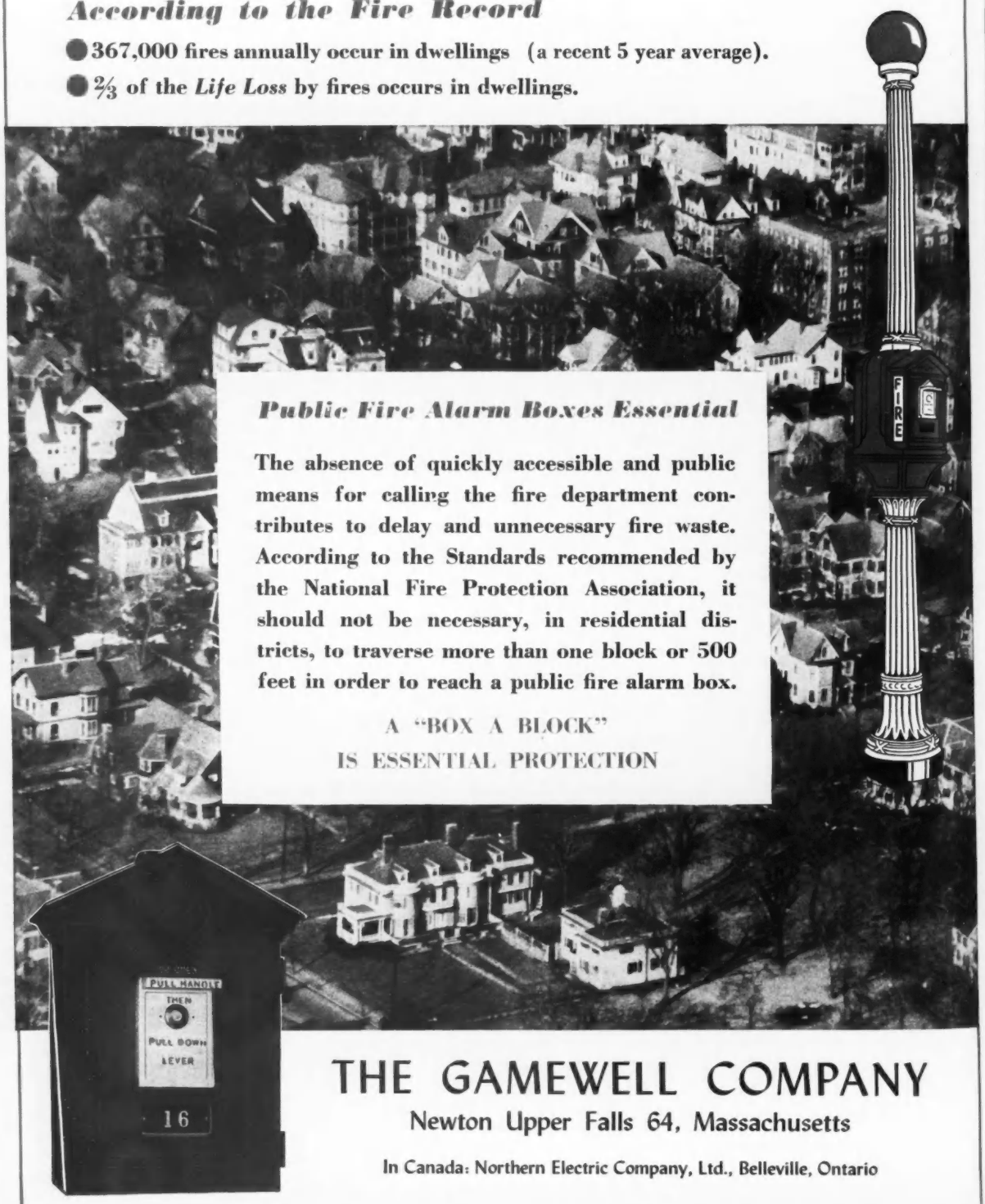
JOHN BEAN DIVISION, DEPT. 127, LANSING 4, MICH. • JOHN BEAN DIVISION (WESTERN), 426 JULIAN ST., SAN JOSE, CALIF.

BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

Delayed Alarms Cost Lives in RESIDENTIAL DISTRICTS

According to the Fire Record

- **367,000 fires annually occur in dwellings (a recent 5 year average).**
- **⅔ of the *Life Loss* by fires occurs in dwellings.**



Public Fire Alarm Boxes Essential

The absence of quickly accessible and public means for calling the fire department contributes to delay and unnecessary fire waste. According to the Standards recommended by the National Fire Protection Association, it should not be necessary, in residential districts, to traverse more than one block or 500 feet in order to reach a public fire alarm box.

A "BOX A BLOCK"
IS ESSENTIAL PROTECTION

THE GAMEWELL COMPANY

Newton Upper Falls 64, Massachusetts

In Canada: Northern Electric Company, Ltd., Belleville, Ontario

There Is a Champion for Every City and Rural Fire Service

CHAMPION

of

VALUE

and

PERFORMANCE

Manufactured by

DARLEY

One of
Three Concerns
Manufacturing
Both
Fire Pumps
and
Fire Apparatus

A highly efficient pumper apparatus with the Champion Two Stage Centrifugal Pump powered by the 145 Horsepower F-7 Ford.

The pump is the S500, Underwriter rated capacity 500 gallons per minute. Actually delivers 700 GPM pumping at draft and 1000 GPM pumping from the average city hydrant.

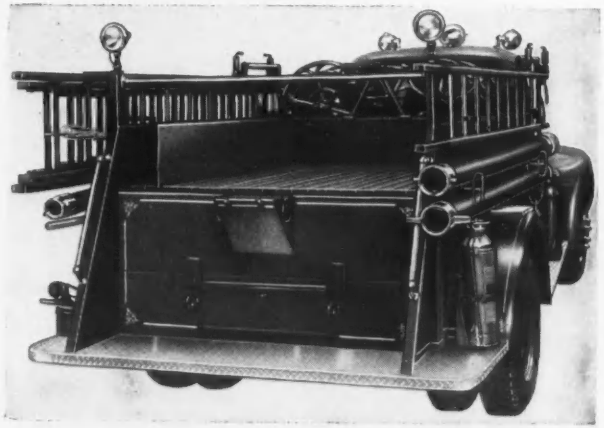
Or this Darley 80 Apparatus is also available in Underwriter capacities of 600 GPM and 750 GPM—the F-7 Ford engine having adequate power for the larger capacity pumps.

Booster Tank: 300 gallon flat type with quick action rear fill and special line piped from pump to tank for refilling tank by pumping at draft.

Booster Hose Reels: Two with horizontal and vertical guide rollers so that hose can be pulled off quickly and easily in any direction without rubbing or binding anywhere.

Hose Bed: Capacity 1200 feet 2½" double jacket fire hose and 400 feet 1½" double jacket hose. The 1½" hose is carried in partitioned space always ready for speedy and effective fire fighting. It is connected to a pump discharge outlet installed in the hose body with control valve accessible from the operating side of the pump. This 1½" line, with a small discharge tip, can be used as a third booster line when pumping from the booster tank. After 2½" fire hose is laid to a hydrant as a supply line to the pumper the 1½" line can be used with a larger tip for maximum fire extinguishing performance.

Write for Fire Apparatus Booklet



High Pressure Fog Pumps

W. S. DARLEY & CO. Chicago 12

Front and Midship Pumps

(ESTABLISHED 1908)

Chosen where only the Finest *will do...* MACK

Mack Type 505, 500 gpm triple combination pumper recently delivered to the Borough of Madison, N.J.

PRIDE of the Borough of Madison, N. J., the Hartley Dodge Memorial is an outstanding example of municipal building design, construction and equipment. From its Council Chamber, in which are housed varied and costly objects of art and museum pieces—such as a desk used by Abraham Lincoln—to the opulent bronze doors at every outside entrance, there is unmistakable evidence that only the finest will do. And when new fire apparatus was recently ordered, the choice was a Mack.

There is sound cause why Macks are so widely regarded as the finest in fire apparatus. Each detail of craftsmanship, every example of design testifies to the quality of Mack construction and to the reasons for Mack leadership in performance, dependability and durability.

When planning the purchase of new fire apparatus, remember that "next best" isn't good enough. Only the finest will do the best job for your fire fighters when lives and property are at stake. Have your Mack representative demonstrate fully why departments in over 1,000 communities rely on Macks.

Be Performance-Wise

Modernize with

Mack

...outlasts them all!

8378

MACK MANUFACTURING CORPORATION
Fire Apparatus Division
Long Island City 1, N.Y.

Factory branches and distributors for service and parts in all principal cities.
In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS—500 TO 2000 GPM...SQUAD AND HOSE CARS...AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS